River *Ceratopsia* to those of the Cow Island beds is marked. Lambe's *Centrosaurus apertus* is much like Cope's *Monoclonius crassus*. The skull of the great spiked dinosaur *Styracosaurus albertensis* Lambe, the most unique of the horned dinosaurs, appears to be related to Cope's *Monoclonius sphenocerus*. The Edmonton *Trachodon* secured from Macheche Creek six miles above Drumheller, on the Red Deer River, Alberta, is closely related to *Trachodon annectens* from the Lance formation.

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"HYDRAULICS" IN THE ENCYCLOPEDIA BRITANNICA

TO THE EDITOR OF SCIENCE: While examining the article "Hydraulics" in the eleventh edition of the Encyclopædia Britannica, Vol. 14, p. 35, I discovered three errors, one of which, at least, is worthy of note in SCIENCE, as it may cause some one to lose valuable time if the published figures are taken too seriously.

The first and most serious of these errors is the value of the coefficient of viscosity for water at 77° F. which is stated to be 0.00000191 in lbs. per sq. ft. per unit velocity gradient in feet per second.[1]

The correct equation for this value in C.G.S. units is

$$\text{Coefficient of viscosity} = \frac{0.0178}{1 + .0337t + .000221t^2}$$

t being in centigrade degrees.[2]

If the numerator be multiplied by the number of square centimeters in one foot and divided by the number of dynes in one pound while the value of t is replaced by $(t - 32) \times 5 \div 9$, the expression for the coefficient of viscosity will become

$$\text{Coefficient of viscosity for water} = \frac{0.0000372}{.4700 + .0144t + .000068t^2}$$

the units being the foot, pound and Fahrenheit degree.

If 77 be now substituted for t the result will be the value of the coefficient for water at 77° F., or, 0.0000188, which is nearly ten times the value given by the Encyclopædia Britannica.

[1] See p. 35, upper right-hand part.

[2] See p. 536, Lamb's "Hydrodynamics," 1906.

Another error occurs in the same article, p. 77, near the top, equation (4). The last sign in the right-hand member should be a minus sign instead of a plus sign. The correct equation is

$$H_1 = \sqrt{(2u_0^2 H_0 \div g + \tfrac{1}{4}H_0^2)} - \tfrac{1}{2}H_0. \quad (4)$$

In Fig. 168, p. 90, the curve marked "Exper. III." should be marked "Exper. I." and the curve marked "Exper. I." should be marked "Exper. III.," the numerals evidently being transposed.

The error in the coefficient of viscosity was carried forward from the ninth edition of the Encyclopædia Britannica and was noted by me in 1909 in a paper on backwater published in *The Minnesota Engineer*, University of Minnesota.

B. F. GROAT

SCIENTIFIC BOOKS

Principles of Stratigraphy. By AMADEUS W. GRABAU, S.M., S.D., Professor of Paleontology in Columbia University. New York, A. G. Seiler and Co. 1913. Pp. xxxii + 1185 + index, with numerous illustrations.

This is a monumental work, one which presents fully and systematically the newer viewpoints in the interpretation of the rocks as the record of geologic history. For this reason it will be of great value, especially to the younger generation of American geologists, in broadening their mental horizon and outlining the problems which rise for solution in the twentieth century study of the rocks. It differs from other manuals in the English language to such a degree that it supplements but does not supplant them. It contains a notably large incorporation of material from German sources and makes full use of recent critical literature of both foreign and American authors. Nearly all of the older geologic manuals, although valuable encyclopedias of geologic science, have stored up the proven knowledge of the past, but have not pointed out the fields for investigation. They have further emphasized facts and principles as explaining facts, rather than as criteria of interpretation. This work contains a wealth of facts, though differing quite largely from that assemblage which has been carried down